What is claimed is:

1. A zeolite bound zeolite catalyst which does not contain significant amounts of non-zeolitic binder and comprises:

(a) core crystals containing first crystals of a first zeolite and optionally second crystals of a second zeolite having a composition, structure type, or both that is different from the structure type of said first zeolite; and

(b) binder crystals containing third crystals of a third zeolite and optionally fourth crystals of a fourth zeolite having a composition, structure type, or both that is different from the structure type of said third zeolite;

wherein said second crystals of said second zeolite, said fourth crystals of said fourth zeolite, or both are present in said zeolite bound zeolite catalyst.

2. The catalyst recited in Claim 1, wherein the average particle size of said binder crystals is less than the average particle size of said core crystals.

3. The catalyst recited in Claim 1, wherein said catalyst contains said second crystals of second zeolite and does not contain said fourth crystals of said fourth zeolite.

4. The catalyst recited in Claim 1, wherein said catalyst contains said fourth crystals of said fourth zeolite and does not contain said second crystals of said second zeolite.

5. The catalyst recited in Claims 1, wherein said catalyst contains said second crystals of second zeolite and said fourth crystals of said fourth zeolite.

6. The catalyst recited in Claim 3, wherein said second zeolite has a structure type and composition that are different from said first zeolite.

7. The catalyst recited in Claim 4, wherein said fourth zeolite has a structure type and composition that are different from said third zeolite.

8. The catalyst recited in Claim 3, wherein second crystals have an average particle size that is smaller than the average particle size of said first crystals.

9. The catalyst recited in Claim 1, wherein said first zeolite and said second zeolite is a large pore zeolite or an intermediate pore size zeolite.

10. The catalyst recited in Claim 9, wherein the structure type of said first zeolite and said third zeolite are selected from the group consisting of MAZ, BEA, MFI, MEL, MTW, EMT, MTT, HEU, FER, TON, and EUO.

11. The catalyst recited in Claim 10, wherein said first zeolite and said third zeolite is an intermediate pore size zeolite.

12. The catalyst recited in Claim 10, wherein the zeolite of the binder has lower acidity than the zeolite of the core.

13. The catalyst recited in Claim 10, wherein the zeolite of the binder has higher acidity than the zeolite of the core.

14. The catalyst recited in Claim 11, wherein said catalyst is prepared by aging at elevated temperatures a silica-bound aggregate containing first crystals of said first zeolite in an aqueous ionic solution containing a source of hydroxy ions sufficient to convert the silica in the aggregate to the binder zeolite.

15. The catalyst recited in Claim 11, wherein the zeolites in said catalyst are gallosilicate or aluminosilicate.

16. The catalyst recited in Claim 1, wherein said catalyst further comprises at least one catalytically active metal.

17. The catalyst recited in Claim 11 wherein said binder crystals form an overgrowth over at least a portion of said core crystals.

18. The catalyst recited in Claim 11, wherein said catalyst contains less than about 5% by weight of non-zeolitic binder based on the weight of said catalyst.

19. The catalyst recited in Claim 11, wherein said core crystals have an average particle size greater of from about 1 to about 6 microns.

20. The catalyst recited in Claim 19, wherein said crystals of said binder have an average particle size of from 0.1 to 0.5 micron.

21. The catalyst recited in Claim 11, wherein the zeolites present in said catalyst have the same structure.

22. A process for converting hydrocarbons comprising contacting a hydrocarbon feedstream under hydrocarbon conversion conditions with a zeolite bound zeolite catalyst which does not contain significant amounts of non-zeolitic binder and comprises:

(a) core crystals containing first crystals of a first zeolite and optionally second crystals of a second zeolite having a composition, structure type, or both that is different from the structure type of said first zeolite; and

(b) binder crystals containing third crystals of a third zeolite and optionally fourth crystals of a fourth zeolite having a composition, structure type, or both that is different from the structure type of said third zeolite;

wherein said second crystals of said second zeolite, said fourth crystals of said fourth zeolite, or both are present in said zeolite bound zeolite catalyst.

23. The process recited in Claim 22, wherein the hydrocarbon conversion is carried out at conditions comprising a temperature of from 100°C to 760°C and/or a pressure of from 10.1 kPag to 10.1 MPag (0.1 to 100 atmospheres) and/or a weight hourly space velocity of from 0.08 hr^{-1} to 200 hr^{-1}.

24. The process recited in Claim 23, wherein the hydrocarbon conversion is selected from the group consisting of cracking of hydrocarbons, isomerization of alkyl aromatics, disproportionation of toluene, transalkylation of aromatics, alkylation of aromatics, reforming of naphtha to aromatics, conversion of paraffins and/or olefins to aromatics, cracking of naphtha to light olefins, and dewaxing of hydrocarbons.

25. The process recited in Claim 24, wherein the average particle size of said binder crystals is less than the average particle size of said core crystals.

26. The process recited in Claim 25, wherein said catalyst contains said second crystals of second zeolite and does not contain said fourth crystals of said fourth zeolite.

26. The process recited in Claim 25, wherein said catalyst contains said fourth crystals of said fourth zeolite and does not contain said second crystals of said second zeolite.

27. The process recited in Claims 25, wherein said catalyst contains said second crystals of second zeolite and said fourth crystals of fourth zeolite.

28. The process recited in Claim 25, wherein said second zeolite has a structure type and composition that are different from said first zeolite.

29. The process recited in Claim 27, wherein said fourth zeolite has a structure type and composition that are different from said third zeolite.

30. The process recited in Claim 25, wherein the zeolites in the catalyst are a large pore zeolite or an intermediate pore size zeolite.

31. The process recited in Claim 30, wherein the structure type of said first zeolite and said third zeolite are selected from the group consisting of MAZ, BEA, MFI, MEL, MTW, EMT, MTT, HEU, FER, TON, and EUO.

32. The process recited in Claim 31, wherein said first zeolite and said third zeolite are an intermediate pore size zeolite.

33. The process recited in Claim 31, wherein the zeolite of the binder has lower acidity than the zeolite of the core.

34. The process recited in Claim 31, wherein the zeolite of the binder has higher acidity than the zeolite of the core.

35. The process recited in Claim 31, wherein the zeolites in said catalyst are gallosilicate or aluminosilicate.

36. The process recited in Claim 31, wherein said catalyst further comprises a catalytically active metal.

37. The process recited in Claim 31, wherein said core crystals have an average particle size greater of from about 1 to about 6 microns.

38. The process recited in Claim 37, wherein said crystals of said binder have an average particle size of from 0.1 to 0.5 micron.

39. The process recited in Claim 1, wherein said catalyst contains at least 4 zeolites and each of the 4 zeolites have a different structure.

40. The process recited in Claim 31, which comprises isomerizing a hydrocarbon feed containing an aromatic C_8 stream comprising xylene isomers or a mixture of xylene isomers and ethylbenzene comprising contacting said feed under isomerization conversion conditions with a zeolite bound zeolite catalyst which does not contain significant amounts of non-zeolitic binder and comprises core crystals containing first crystals of a first zeolite and second crystals of a second zeolite and binder crystals containing third crystals of a third zeolite.

41. The process recited in Claim 22, wherein said hydrocarbon conversion process is the cracking hydrocarbon compounds.

42. The process recited in Claim 22, wherein said hydrocarbon conversion process is the disproportionation of toluene.

43. The process recited in Claim 42, wherein the zeolites present in said catalyst have an intermediate pore size.

44. The process recited in Claim 43, wherein the catalyst is selectivated.

45. The process of Claim 44, wherein the selectivated catalyst contains from about 2 to about 40% by weight of coke.

46. The process recited in Claim 44, wherein the selectivated catalyst contains silicon.

47. The process recited in Claim 44, wherein said toluene disproportionation conditions comprise contacting said toluene stream with said catalyst at a temperature in the range of between about 400°C to 550°C, at a pressure in the range of from 1 to 100 atmospheres and at a weight hourly space velocity in the range of from about 0.5 to 50, and wherein said toluene stream further contains hydrogen at H_2/toluene mole ratio in the range of from greater than 0 to about 10.

48. The process recited in Claim 44, wherein said first zeolite and said third zeolite have a structure type selected from MFI an MEL.

49. The process recited in Claim 48, wherein said binder crystals are silicalite, silicalite 2, or mixtures thereof.

50. The process recited in Claim 22, wherein said hydrocarbon conversion process comprises dehydrocyclization and/or

isomerization of acyclic hydrocarbons to form aromatic hydrocarbons.

51. The process recited in Claim 50, wherein the catalyst contains first crystals of a first zeolite and second crystals of a second zeolite and binder crystals containing third crystals of a third zeolite and said first zeolite, said second zeolite, and said third zeolite are each independently selected from the group consisting of *BEA, MFI, MEL, MTW, MWW, LTL, EUO, MTT, FER, TON, and MOR.

52. The process recited in Claim 51, wherein the catalyst further comprises at least one catalytically active transition metal.